REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Formalities

The specification has been amended by changing "cascaded" to –cascoded, as required in item 1 on page 2 of the Official Action. In addition, the claims have been amended to correct each of the informalities noted in item 2 on page 2 of the Official Action.

Because the changes are all formal in nature, it is respectfully submitted that the changes do not involve new matter.

2. Rejection of Claim 4 Under 35 USC §112, 2nd Paragraph

This rejection has been addressed by:

a. amending claim 4 to recite that the voltage level of the second comparison voltage is within a range of the detection voltage level; and

b. amending claim 6 to clarify that the total number of cascoded transistor pairs is two when the detection voltage level is twice the second comparison voltage.

3. Rejection of Claims 1-4 Under 35 USC §102(b) in view of U.S. Patent No. 5,814,995 (Tasdighi)

This rejection has been rendered moot by the amendment of claim 1 to include the limitations of original claim 5.

4. Rejection of Claims 5 and 6 Under 35 USC §103(a) in view of U.S. Patent Nos. 5,814,995 (Tasdighi) and 5,521,489 (Fukami)

This rejection is respectfully traversed on the grounds that the Fukami patent, like the Tasdighi patent, neither discloses nor suggests a comparator having a detection voltage level and at least one transistor pair having a cascoded number that varies with the detection voltage level *such that a total number of cascoded transistor pairs is determined based on the cascoded*

number, as originally recited in claim 5 and now recited in claim 1, much less the inclusion of two cascoded transistor pairs when the detection voltage is twice as high as a second comparison voltage, as recited in claim 5.

According to the invention, the number of cascoded transistor pairs is increased as the voltage to be detected exceeds multiples of the detection voltage. For example, if the voltage to be detected is approximately equal to the detection voltage, then the number of cascoded pairs is one. However, if the voltage to be detected might exceed twice the detection voltage, then another cascoded pair is added to increase the area ratio of the bipolar junction transistor and thereby increase the rate at which temperature-responsive increases in the reference voltage are countered by negative changes in the emitter-base voltages of the transistors. If the voltage to be detected might exceed three times the detection voltage, then yet another cascoded pair is added.

The Tasdighi patent discloses a voltage detection circuit similar to that of the claimed invention, but that clearly fails to provide for increasing the number of cascoded transistor pairs as the range of voltages to be detected is increased. To the contrary, Tasdighi considers the circuit disclosed in Fig. 5 to be sufficiently stable to enable use of variable resistances to vary the voltage to be detected *without* changing the number of cascoded transistor pairs. This is because Tasdighi fails to take into account the magnitude of voltage-temperature changes, and does not consider that the compensating effect of the transistor's negative temperature coefficient does not increase with increasing voltage.

This deficiency is not made up for by the Fukami patent, which discloses a temperature-independent bandgap voltage source and an additional temperature-compensating circuit element 34. While Fukami teaches one embodiment having two cascoded pairs of transistors and one with a single cascoded pair, the number of cascoded pairs has *nothing* to do with the amount by which the voltage-to-be-detected exceeds the reference voltage. To the contrary, Fukami cascoded transistor pairs are FETs rather than bipolar junction transistors, which do not have

temperature-dependent emitter-base voltage (or corresponding gate voltage) properties, and there is no possible need for increasing the number of cascoded pairs in the manner claimed. **Instead, Fukami teaches a variety of different temperature compensating elements including resistance 21 and diodes 34, which are not necessary in the claimed invention**. Even if the teachings of Fukami were somehow to be applied to the voltage detection circuit of Tasdighi, the result would not have been the claimed invention, but rather a voltage detection circuit with a temperature independent gand gap voltage source and temperature-compensation elements such as a resistance or diode pair.

Because the Tasdighi and Fukami patents fail to disclose or suggest, whether considered individually or in any reasonable combination, the claimed relationship between transistor pairs, voltages to be detected, and reference voltages, withdrawal of the rejection of the subject matter of original claim 5 (now included in claim 1) is respectfully requested.

4. Rejection of Claim 7 Under 35 USC §103(a) in view of U.S. Patent Nos. 5,814,995 (Tasdighi), 5,521,489 (Fukami), and 5,731,686 (Malhi)

This rejection is respectfully traversed on the grounds that the Malhi patent, like the Tasdighi patent, neither discloses nor suggests a comparator having a detection voltage level and at least one transistor pair having a cascoded number that varies with the detection voltage level *such that a total number of cascoded transistor pairs is determined based on the cascoded number*, as is now recited in claim 1.

Instead, the Malhi patent discloses over-temperature protection for a battery regulator that lacks any sort of cascoded transistor pairs. In addition, it is respectfully submitted that Malhi does not even disclose the claimed power disconnection switch coupled between a resistor pair and the input voltage, since MOSFET switch Q1 of Malhi is actually controlled to provide a constant battery output voltage rather than power-saving power disconnection.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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